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CERTIFICATION OF A CENTRAL COUNT OPTICAL SCAN AND DIRECT RECORDING ELECTRONIC VOTE TALLYING SYSTEM

In May 2005 Sequoia Pacific Voting Equipment of Little Rock, Arkansas requested the review and examination of enhancements to a Washington State certified optical scan and direct recording electronic vote tallying system.

Upon examination of the system, the Secretary of State finds the WinEDS system satisfies the requirements of Washington State law. This version of the system, NASED N-07-22-11-007 (1990), consists of:

- *Hardware*. comprised of:
  - Optech 400-C,
  - AVC Edge 2, Precinct Voting Machine (DRE),
  - AVC Edge Card Activator device;

- *Software*. comprised of:
  - WinEDS; software version 3.0.134 (2002),
  - WinETP; software version 1.10.5 (2002),
  - Card Activator device; firmware version 4.3.320,
  - AVC Edge 2 device with VeriVote; firmware version 4.3.320.

On this date, under the provisions of RCW 29A.12.020, the Office of the Secretary of State hereby certifies the *"WinEDS Election System"*, submitted by Sequoia Pacific, and approves it for use as a direct recording electronic vote tabulation system and central count optical scan system by County Governments of the State of Washington when used in compliance with the procedures contained in this certification, accompanying Reports and Findings, and Washington State law.

This system has not been evaluated against the disability access standards as set forth in the Help America Vote Act of 2002 and the Election Assistance Commission Advisory, 2005-004 (July 20,2005). It is, therefore, not certified as meeting those requirements.

Certified on this August 3, 2005

SAM REED
Secretary of State

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STAFF REPORT OF THE SECRETARY OF STATE
ON THE EXAMINATION AND EVALUATION OF AN
ELECTRONIC VOTE TALLYING SYSTEM

In May 2005 Sequoia Pacific Voting Equipment of Little Rock, Arkansas requested the review and examination of an electronic system under RCW 29A.12.020 and 29A.12.030. The hardware and software for this system are marketed under the name Sequoia Pacific WinEDS Election Data System (NASED #N-07-22-11-007 (1990)). The Software that administrates the election definition and election results components of the system is the WinEDS Version 3.0.134 System (2002), an upgrade of the previously certified version 3.0.132. The hardware components include the AVC Edge 2 DRE Voting Machine Hardware, Firmware Release 4.3.320 with VeriVote (previously 4.3.302), the Card Activator, Firmware Release 4.3.320 (previously 4.3.302), and the 400C Central Counter with WinETP 1.10.5 (2002).

The AVC Edge is a poll-site based, direct recording electronic (DRE) voting device with a touch screen interface which interprets touch in specified locations to interact with the voter. The AVC Edge also provides a voter verified paper audit trail (VVPAT) and an audio ballot with headphones for voters with visual disabilities The AVC Edge also comes with a stand that allows wheel chair access to the device.

At a poll site a card activator device is used by the poll workers to program a smart card with the precinct code for each voter. The smart card will activate the correct ballot type for the voter when inserted into an AVC Edge device. As part of the vote processing and ballot saving, the flash card is deactivated when the voter casts his or her ballot. The card is then returned to the poll worker for the next voter.

The results cartridge, a Flash ROM memory cartridge based upon the PCMCIA interface, is used to store the poll site specific election definition, ballot types and the primary copy of the election results for that device. In addition to the removable results cartridge, the AVC stores all vote data and audit log data redundantly to an internal audit trail device, also based upon Flash ROM technology.

The 400-C is a centralized, automatic feed, high volume optical ballot scan reader. The reader interprets the ballot and records precinct batch vote totals onto a personal computer. The personal computer is an IBM-compatible which is part of the Optech 400-C and interacts with a central computer that runs WinEDS. The vote totals are accumulated and reported from the central computer.

The WinEDS software is menu driven and allows the user to describe all aspects of an election. In preparation for ballot counting, the user enters office descriptions, positions, precinct combinations, ballot types, and any statistical information such as registered voter totals. The WinEDS software is used to produce and download the precinct specific programming onto the AVC Edge Results Cartridge. A personal computer

running the WinEDS Election System serves as the central accumulator for countywide results. WinEDS can accumulate results by reading the AVC Edge Results Cartridge. There is no telephonic communication feature at this time.

An electronic vote tallying system must meet the following requirements (as set forth in WAC 434-335-040) in order to be approved for use in Washington State:

1. Secures to the voter secrecy in the act of voting;
2. Permits the voter to vote for any person for any office and upon any measure that he or she has the right to vote for;
3. Permits the voter to vote for all the candidates of one party or in part for the candidates of one or more other parties;
4. Correctly registers all votes cast for any and all persons and for or against any and all measures;
5. Except for functions or capabilities unique to this state, has been tested and approved by the appropriate independent testing authority approved by the United States election assistance commission.
6. Correctly counts votes on ballots on which the proper number of votes have been marked for any office or issue;
7. Ignores votes marked for any office or issue where more than the allowable number of votes have been marked, but correctly counts the properly voted portions of the ballot;
8. Accumulates a count of the specific number of ballots tallied for each precinct, total votes by candidate for each office, and total votes for and against each ballot measure on the ballot in that precinct; and
9. Produces precinct and cumulative totals in printed form.
10. Be capable of being secured with lock and seal when not in use;
11. Be secured physically and electronically against unauthorized access;
12. Not be connected to, or operated on, any electronic network including, but not limited to, internal office networks, the internet, or the world wide web. A network may be used as an internal, integral part of the vote tabulating system but that network must not be connected to any other network, the internet, or the world wide web; and
13. Not use wireless communications in any way.
14. A remote tabulating system must be able to create a disk, paper tape, or other physical record of ballot results prior to a telephonic transmission of results.

Testing and evaluation Sequoia Pacific WinEDS Election Data System with the AVC Edge 2 DRE and 400C Central Counter was conducted by Secretary of State staff, June 29th, 2005 in the Secretary of State's office at 520 Union in Olympia, WA. Examining the system for the Office of the Secretary of State was Paul Miller, Elections Information Manager. Also participating in the examination were members of the Pierce County Elections staff, and representatives from Sequoia Pacific. The vendor made a presentation of the WinEDS Election Data System and test elections were conducted

using groups of test decks prepared at the direction of the Office of the Secretary of State and other ballots prepared by the examiners.

FINDINGS OF THE SECRETARY OF STATE

The Sequoia Pacific WinEDS Election Data System with the AVC Edge DRE and 400C Central Counter has been successfully used in Snohomish County for several years, as well as widely throughout the nation. While the system and its components' reliability and accuracy have not been brought into question, an out of specifications read head on a 400C led to some inaccuracies in a machine count that were detected during a recount in 2002. Snohomish County has since adopted procedures to ensure that such a hardware malfunction will be detected.

Some concerns have been raised about the ability of a person with visual disabilities to use the VVPAT features of the Edge 2 DRE. The system does not provide a mechanism that allows the VVPAT to be verified by a person with visual disabilities. It does however produce the paper record simultaneously with the audio review of the ballot and allows the voter to verify his/her choices prior to recording the ballot. It is the understanding of staff that this meets the criteria of the Help America Vote Act as interpreted by the Department of Justice.

A voter who uses an incorrect marking tool to mark the ballot can create a problem. The equipment will not read a range of red ink. Inspection should be performed on each ballot to insure that black ink, or an ink or pencil that provides high contrast with the ballot color, was used by the voter in marking the ballot.

Additionally, the vote tallying equipment only scans the response areas next to the candidate name looking for votes. If a voter marks the ballot in a manner inconsistent with the function of the machine (for example, they mark the ballot by circling candidate names), the machine will fail to record an otherwise valid vote. A visual inspection of each ballot looking for odd marks will solve this issue.

The Edge provides a feature of convenience that allows a special ballot to be cast and optionally included in the election results after review by the elections staff. Special ballots are part of a "fail safe" process that allows an individual to cast a ballot in situations where poll workers are unable to establish the individual's eligibility. The ballot is counted only after election staff is able to determine if the individual is eligible to vote on the ballot contests. The test and material review could not establish that the feature functions in a manner consistent with RCW and state practice for special ballots.

After an evaluation of the system as upgraded and a review of the accompanying documentation, staff believes the system and its components continue to meet current Washington State requirements as outlined in WAC 434-335-040. The documentation accompanying the application for certification shows the system with upgrades was fully reviewed by federally approved independent testing authorities prior to receiving NASED certification. The Sequoia Pacific WinEDS Election Data System with the AVC Edge 2 DRE and 400C Central Counter is certified for use in California and Nevada.

SECRETARY OF STATE STAFF RECOMMENDATION

Staff recommends the Sequoia Pacific WinEDS Election Data System with the AVC Edge 2 DRE and 400C Central Counter be certified for use in Washington State, provided the following procedures are used in conjunction with the system to assure proper tallying and results:

The system may be used as a central counting system if each ballot is manually inspected before tabulation. The inspection should look for improperly marked ballots, and ballots marked with non-standard marking colors.

While the major upgrade of the 400C included in this certification is a new read head technology, counties using this system must maintain a regular program of maintenance of the device as well as a consistent review of precinct election results to detect anomalies. This is required of all optical scan systems used in the state.

The Flash ROM memory cartridge must be treated with the same accountability and security practices that are employed with unvoted and voted paper ballots.

The user county will not use the systems' provisional voting feature and will continue to provide a paper ballot to voters in situations that call for a special ballot.

The design of the AVC Edge and Washington State law allow the user county to employ the AVC Edge as an 'early voting' system. 'Early voting' refers to voters who cast a ballot on the AVC Edge prior to the election date. Conceptually this is the same as a voter picking up and casting an absentee paper ballot at the county elections office prior to an election.

The AVC Edge may be used as an 'early voting' system provided the following procedures are used to comply with the requirements of Washington State law:

- The security safeguards applied to the AVC Edge are consistent with those used to protect returned absentee ballots.
- Access to the AVC Edge is controlled. The device must remain in plain view of the office at all times during working hours and under lock and seal after business hours.
- The AVC Edge voter must sign the same oath an absentee voter does and the user county must maintain a log of all 'early' voters with the voters' signatures.
- The poll books must be marked with an indicator that warns the poll worker to issue a provisional ballot to a voter at the polls who has voted early.
- It is also recommended that the user county keep a record of the number of votes cast each evening when they close the AVC Edge and confirm the number of votes on the device when opening the device the next morning. It is further recommended that the Card Activator be kept separate from the AVC Edge after hours.

It is recommended that the canvassing board of any county using this system adopt written procedures governing these processes. This equipment should be used with a device or devices capable of suppressing current surges, voltage fluctuations, and any other line disturbances.

VOTING SYSTEMS REVIEW PANEL FINDINGS AND RECOMMENDATION

FINDINGS

At the hearing conducted by the Voting Systems Review Panel, some concerns were raised in testimony as to whether this system was tested to 2002 standards and whether it is compliant with the voting systems standards in the Help America Vote Act of 2002 (HAVA). At issue here is the question of whether AVC Edge 2 DRE qualifies as a poll site voting device that meets the disability access requirements of HAVA section 301.

This issue requires some background.

The National Association of State Election Directors (NASED) is the only entity that has created a federal process for testing a vendor's system against the Federal Election Commission (FEC) Voting Systems Standards. When NASED adopted the 2002 FEC standards in 2003, they instituted a period of time for the voting system vendors to bring their systems up to the new standards. This included a provision that, for a period of time, when vendors bring voting systems that had been previously tested and qualified under the 1990 standards, only the upgrades must be evaluated against the 2002 standards by the federally approved independent testing authorities. However, by 2006, systems previously qualified under the 1990 standards must be completely qualified under the 2002 standards as well before upgrades can be evaluated.

In adopting the FEC standards, the Secretary of State has also incorporated the NASED process for evaluating voting systems against those standards. Washington State does not have the resources to independently evaluate voting systems against the FEC standards.

The Sequoia Pacific WinEDS Election Data System with the AVC Edge DRE and 400C Central Counter has been used extensively around the country for several years and has been qualified by NASED under the 1990 standards. The upgrades to the AVC Edge required to incorporate the voter verifiable paper audit trail (VVPAT) for Nevada in 2004 and now required in Washington State for 2006 were evaluated under the 2002 standards. The system was functionally tested as a whole and certified under NASED number #N-07-22-11-007 (1990) in May 2005.

As the vendor has requested this system be certified at this time, and as this system has been qualified under the existing implementation of the FEC 2002 standards, and as it has been certified and used in at least one other state, and as it has been tested and determined that it meets Washington State functional requirements, the Panel believes the system is qualified for use in Washington State.

However, the Panel believes some restrictions on its use are appropriate.

This leads us to the separate question of whether or not the AVC Edge 2 DRE qualifies as a handicap-accessible voting device under the provisions of HAVA section 301.

The Election Assistance Commission has just issued an advisory, EAC Advisory 2005-004 (July 20,2005) to assist states in evaluating whether a voting system meets the HAVA standards of section 301(a). The advisory cites elements of the 2002 FEC Voting Systems Standards to evaluate each of the HAVA requirements.

It is the understanding of the Panel that, while the Edge 2 has been tested and certified under the existing NASED implementation of the 2002 standards, it has not been evaluated against all the pertinent standards cited in the EAC advisory.

As the Edge 2 has not been evaluated against all the 2002 standards pertinent to the HAVA section 301 requirements, and as the Panel has received testimony that the Edge 2 likely does not meet some of those standards, and as Sequoia appears to acknowledge that the Edge 2 does not currently meet some 2002 standards, the Panel believes the Edge 2 can not be used to satisfy the HAVA 301 requirements.

It is the understanding of the Panel that Sequoia intends to upgrade both the Edge 1 and Edge 2, federally test the entire system to the 2002 FEC/NASED standards, and seek state certification of this system by January 2006 in full compliance with the NASED system for implementing the 2002 standards. Accessibility features in the upgrade will include:

- font size controls that allow the voter to control the size of the font display,
- a high contrast display screen,
- audio controls that allow the voter to control the volume of the audio ballot, and
- a system volume default that returns the audio volume to a preset level after every ballot is cast.

It is the understanding of the Panel that Sequoia has agreed with the Secretary of State to upgrade, prior to June 2006, any systems purchased under this certification to the 2002 compliant state-certified version free of charge to the county.

While there are no current federal or state standards for 'sip n puff' and foot pad accessibility features, the Panel understands that Sequoia has agreed to make support for these devices an immediate priority in their development plans and also make it available to the counties by June 2006. The Panel believes this technology broadens the range of accessibility, meets the intent of HAVA, and is likely to be adopted as a standards requirement in the foreseeable future. The Panel notes that several of Sequoia's competitors have already implemented these features as part of their system.

RECOMMENDATIONS

By consensus, the Voting Systems Review Panel adopts the recommendation of Secretary of State staff that the Sequoia Pacific WinEDS Election Data System with the AVC Edge 2 DRE and 400C Central Counter, federally tested and certified by NASED under #N-07-22-11-007 (1990), be certified for use in Washington state. The Panel makes this recommendation with the expectation that Sequoia will upgrade, free of

charge to the county, any Edge 2 devices purchased under this certification to the 2002 compliant state-certified version by June 2006.

The AVC Edge 2 has not yet been fully evaluated against the 2002 FEC standards pertinent to the accessibility requirements of HAVA section 301. The Sequoia Pacific WinEDS Election Data System with the AVC Edge 2 DRE and 400C Central Counter may otherwise be used as a voting system in this state but the Panel recommends that the Edge 2 not be certified for use in meeting the HAVA 301 requirements until it has been successfully evaluated against the 2002 standards.

The Panel recommends that counties not purchase the system at this time or alternately, their contract of purchase with Sequoia include a provision that the vendor will upgrade this system prior to June 2006 free of charge to the county.

The Panel fully supports the intent of the HAVA disability access legislation and recommends the Secretary of State promulgate rules that voting devices intended as HAVA-compliant disability access devices be successfully evaluated against the FEC 2002 standards identified by the EAC as pertinent to the HAVA 301 requirements prior to use as such in Washington State. These rules should insure that the device includes accessibility features such as:

- font size controls that allow the voter to control the size of the font display,
- a high contrast display screen or a control that allows the voter to chose a high contrast display,
- audio controls that allow the voter to control the volume of the audio ballot, and
- a system volume default that returns the audio volume to a preset level after every ballot is cast.

In addition, the Voting Systems Review Panel adds the following procedures and restrictions to the use of this system:

> Prior to every election the user county will test the touch screen device for calibration. This will be done to insure the touch screen responds correctly to the user's touch.
>
> Prior to every election the user county must listen to the entire audio ballot and correct any mispronunciations.